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MARKETING MAINE POTATOES

BOSTON RETAIL PRICES AS ASSOCIATED WITH TYPES OF PACKAGES, RETAILERS, AND CONSUMER INCOMES, FEBRUARY 26 TO APRIL 6, 1940

Preliminary Report

By

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COOPERATIVE RESEARCH AND SERVICE DIVISION
in cooperation with
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SUMMARY

This report is part of a study conducted by the Maine Agricultural Experiment Station and the Cooperative Research and Service Division of the Farm Credit Administration. The research was undertaken at the request of potato producers in Maine, including the membership of a potato-marketing cooperative, to obtain data that would be useful to evaluate their potato-marketing programs and in determining the adequacy of these programs for meeting marketing problems. Information on potato purchases here presented was given by consumers interviewed between March 4 and April 6, 1940, in the Boston metropolitan area. In this report price data have been related to such factors as time, source of purchase, kind of package, and population characteristics of consumers.

Potatoes, whether purchased in less-than-peck, in unbranded, or in branded peck packages, were available at a wide variety of prices in the early spring of 1940. Price ranges for specific marketing days were as wide as those for each of the 4 weeks in March or for the entire sampling period.

It was found that a large proportion of Italian and Negro families, population groups with lower average weekly incomes than other groups, bought relatively low-priced potatoes. Furthermore, when purchases of unbranded packages for all population groups were classified by family incomes, the percentages of purchases of comparatively high-priced packages increased consistently as family income increased, and conversely the largest proportions of purchases of low-priced packages were made by families in the low-income groups. Still further, size of family and price were also closely associated; as the number of persons per family increased, the proportions of families buying relatively low-priced unbranded packages increased. Probably the average income per person tended to be lower as size of family increased. Organizations planning merchandising programs should keep in mind that some population groups in Boston provide a market for low-priced packages of potatoes.

Family income was a factor in the decision to buy branded or unbranded packages, but no consistent relationship between prices paid and income was apparent once the decision to buy branded packages had been made. Although the data show that a significant percentage of families were willing to pay higher prices for branded packages, it should not be overlooked that an equally significant percentage, either through necessity or through having had experiences in which price was not always a dependable guide to quality, were selecting low-priced packages.

Irrespective of population characteristics, families who bought potatoes in quantities of less than a peck paid the highest average price per peck for them, while those who bought branded peck packages paid more than those who bought unbranded peck packages. The average price per peck of the few purchases of a bushel or more, mostly 100-pound bags, was lower than that of peck or smaller packages. These differences indicate that the cost per pound to consumer was related inversely to the size of package purchased.

Although independent stores sold as many less-than-peck and unbranded peck packages as the large chain groups, the latter stores were outstandingly in the lead in the sale of branded packages. One reason was that branded packages were not carried by many independent stores; another may have been that some consumers had good will for certain brands carried by stores of the large chain groups. About 80 percent of the 1,497 families included in this report had made their last purchase of potatoes either at stores of large chain groups or at independent stores. About half of the remaining families had bought at chain stores not included in the larger corporate groups, and the rest had been supplied by hucksters.

Wholesale and retail prices of potatoes both advanced somewhat during March 1940. The retail advance was by no means uniform. It did not occur simultaneously or to the same extent at chain and at independent stores. It was most pronounced for less-than-peck packages and for packages carrying a brand name, and least in evidence for unbranded peck packages. That such changes in price relationships are important to marketing organizations is indicated by the fact that a significant proportion of consumers shifted to unbranded peck packages in the later part of March.

All income groups in Boston used potatoes in appreciable quantities, but the association between prices paid and income shows that some buyers were willing to pay prices higher than others in their attempt to purchase more desirable potatoes. A housewife in Boston presumably will attempt to satisfy her needs in the light of any preferences she may have for size, quality, variety, kind of package, and relative price. If she is very price conscious, she will probably buy potatoes at as low a price as possible. If her preferences for a certain size or quality are strong, and her food budget allows it, she may be willing to pay a few cents more to get potatoes that satisfy such preferences. This evidence of willingness of some consumers to pay higher prices is a matter of primary interest to an organization concerned with the marketing of potatoes on the basis of quality in consumer packages.

The study shows that most housewives in Boston recognized quality differences in their potato purchases. However, since data in previous releases (footnote, p. 2) indicate that there was not a high degree of relationship between quality and price in either branded or unbranded retail packages of potatoes during March 1940, the consumer who paid high prices to get more satisfactory potatoes often must have been disappointed. If steps were taken, therefore, to maintain a consistent relationship between quality and price, some consumers now buying at relatively low prices would be attracted into the higher-priced group, and the requirements of the low-income consumers would probably be met more adequately than under prevailing conditions of distribution. Such a program should be broad enough to include all the product available for sale priced in such a way as to make it flow freely into all parts of the market. What price spreads would develop under such a program is a matter of conjecture, but it seems reasonable to assume that increased consumer good will would react to the benefit of producers.

MARKETING MAINE POTATOES

Boston Retail Prices As Associated with Types of Packages, Retailers, and Consumer Incomes, February 26 to April 6, 1940

By

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NOTE. - The author wishes to acknowledge the contributions of Maynard A. Hincks and the members of the staff of the Maine Agricultural Experiment Station; of Alexander Sturges of the Bureau of Labor Statistics, U. S. Department of Labor; and of Kelsey B. Gardner and members of the staff of the Cooperative Research and Service Division of the Farm Credit Administration.

Under the general subject "Marketing Maine Potatoes" a series of preliminary reports has been published based upon a consumer and retail-store study in the Boston metropolitan area during March and early April of 1940. The first of these releases deals with consumer preferences for potatoes; the second discusses the use of potatoes and substitutes in homes of Boston consumers; the third is concerned with organization and market practices in Maine and Boston; and the fourth analyzes the retail distribution of potatoes in the Boston area. 1/ This report, the fifth of the series, takes up the prices paid for potatoes by Boston families from February 26 to April 6, 1940, particularly as they relate to such factors as time and source of purchase, kind of package, and population characteristics of consumers.

The study was undertaken at the request of growers, including cooperative association members, together with others interested in an examination of the marketing problems of Maine potato producers and in the further development of a marketing program for this commodity.

Price data of this nature should be of interest to marketing organizations because they yield some information on what the several groups of consumers want and buy. A marketing program that meets consumer preferences, as well as ability to pay, in the long run will be most useful to both consumer and producer. Such a program must be broad enough to include all the product available for sale, priced in such a way as to make it flow freely into all parts of the market.

1/ These reports are: (a) Hincks, M. A., "Marketing Maine Potatoes: A Preliminary Report of Consumer Preference for Potatoes in Boston, March 4 to April 6, 1940." Me. Agr. Expt. Sta. in cooperation with F. C. A. 40 pp., illus. 1940. (Mimeographed)
(b) Foelsch, G. G. and Sprague, G. W., "Marketing Maine Potatoes: A Preliminary Report of Purchase and Use of Potatoes and Substitutes in Homes of Boston Consumers, March 4 to April 6, 1940." F. C. A. Misc. Rept. 27. 40 pp., illus. 1940. (Mimeographed)
(c) Hincks, M. A. and Sprague, G. W., "Marketing Maine Potatoes: A Preliminary Report of Organization and Marketing Practices in Maine and Boston." F. C. A. Misc. Rept. 31. 29 pp., illus. 1940. (Multilithed)
(d) Mumford, H. W., "Marketing Maine Potatoes: A Preliminary Report of the Retail Distribution of Potatoes in the Boston Metropolitan Area, March 1940." F. C. A. Misc. Rept. 26. 42 pp., illus. 1940. (Multilithed)

Data were gathered from householders in the cities indicated by the shaded areas in figure 1. Throughout this study the families interviewed in this metropolitan area are referred to as "Boston families." The information they gave as to the date, price, quantity, and source of the last purchase of potatoes was the basic material for this report. However, no attempt was made to measure daily price changes because this would have necessitated a series of daily, comparable samples not gathered for this study.

The following data show a wide range in the prices consumers pay for potatoes. This range in prices is partly associated with the economic status of the household. The importance of these data are that they serve as a warning to producers and marketing organizations that any attempt to sell most of the potato crop of Maine at relatively high prices is likely to result in restricted volume. Too many consumers, because of low incomes, large families, or habit, do not pay high prices. A marketing program for greatest success should include a grading program that would direct to these consumers wholesome and desirable potatoes at average or lower prices. In addition, a carefully selected package of premium quality potatoes should be made available to consumers who pay higher prices. Such a program has the advantage of giving the selling agency competitive efficiency by providing it with a product suitable to consumers of various economic conditions. It also increases the volume of sales by this same device. At the same time a market may be created for the entire crop with a suitable proportion selling at higher prices.

WHOLESALE PRICES OF MAINE POTATOES

Some evidence of stability of potato prices in Boston during March 1940, or lack of it, may be obtained by observing the behavior of wholesale prices. Furthermore, insofar as changes in wholesale prices are associated with changes in retail prices, their course during March is of interest to this study.

Prices are here given for U. S. No. 1 grade of the three principal varieties of Maine potatoes sold in 100-pound bags on the Boston wholesale market in March (table 1). Since prices did not fluctuate daily, the Friday sample was considered sufficient to show price changes during the month. Other size and quality grades and types of packages also were available from which the retailer could choose his supplies, price depending somewhat on his selection. Table 1 shows that wholesale prices of U. S. No. 1 Maine potatoes advanced slightly from March 1 to March 29, 1940. These changes indicate that the retailer probably paid more for Maine potatoes toward the close of March than in the first half of the month. The price data gathered from consumers should reveal whether this wholesale price advance was reflected in higher retail prices to his customers.

Table 1. Wholesale prices of U. S. No. 1 Maine potatoes in 100-pound bags on the Boston market, by varieties, for specific days, March 1 to March 29, 1940 1/

Date	Green Mountain		Chippewa		Katahdin	
	Size A	2-inch min.	Size A	2-inch min.	Size A	2-inch min.
	Dollars	Dollars	Dollars	Dollars	Dollars	Dollars
March:						
1	1.70-1.80	1.85-1.90	1.80-1.90		1.75-1.85	1.85-2.00
8	1.75-1.80		1.80-1.90			1.80-2.00
15	1.85-1.95			1.90-2.00		1.90-2.00
22	1.85-1.90	1.90-2.00		1.95-2.00		1.95-2.00
29	1.85-1.90	2.00-2.10		2.00-2.10		2.00-2.10

1/ Sales until 10:00 a.m. on wholesale market in less-than-carlot quantities. Wholesale prices on U. S. Commercials, Maine Utilities, and occasionally on Maine culls were also quoted, but are not included in this table.

To meet the requirements for size A for round or intermediate shaped varieties, as given in the U. S. standards for potatoes, the diameter of each potato shall be not less than 1 7/8 inches and not less than 60 percent of the potatoes in the lot shall be 2 1/4 inches or larger in diameter. Tolerance allowed 5 percent. The 2-inch minimum standard is a size classification sometimes used by potato shippers and other members of the trade in which the number of potatoes less than 2 inches in diameter shall not exceed the tolerance for undersized potatoes.

Source: Miscellaneous Fruit and Vegetable Reports 51-79. U. S. Dept. of Agr., Agricultural Marketing Service, 408 Atlantic Avenue, Boston, Massachusetts (Mimeographed). These reports also give wholesale prices on U. S. Commercials, Maine Utilities, and occasionally on Maine Culls.

The effect upon retail prices of changes in wholesale prices may not be clear-cut, as several factors may concurrently affect this relationship in a wide consuming area. For example, data gathered at retail stores indicated that most retailers in Boston replenished their supplies only once or twice a week, but a few large retail outlets did so three times a week. As a result, when changes in retail prices occurred, they tended to follow changes in wholesale prices but the lag was not uniform for all retail outlets. Then too, some retailers may have decided to avoid advances on the wholesale market by buying a lower-priced lot of potatoes; others may have found it expedient to absorb advances by narrowing margins, thus leaving the retail price undisturbed. In cases where potatoes were handled by several dealers before reaching the retailer, pyramiding of price advances may have brought sharper retail than wholesale advances.

PRICES AS RELATED TO RETAIL PACKAGES AND TO RETAIL OUTLETS

Daily, between March 4 and April 6, 1940, enumerators were sent to various sections of Boston and the designated suburbs (figure 1) to get information from householders about potatoes, particularly Maine potatoes. Information obtained applied specifically to the last purchase made by the housewife. She may have bought the potatoes on the day of the interview, during the previous week, or perhaps more than a week before. In this report, purchases that were definitely not Maine potatoes, as well as those made before February 26, were excluded. 2/ It was found that 1,497 of the 1,806 families interviewed had bought potatoes on some day between February 26 and April 6, 1940, and were able to supply data on package, quantity, price, and source of the last purchase of potatoes.

The following classification was used: "Less than pecks" include all purchases of less than 15 pounds; "branded pecks" are those 15-pound packages under a brand name and with or without a grade designation; "unbranded pecks" are 15-pound packages, without a brand name, usually put up in brown paper bags either at the time of consumer purchase or in advance of it; half bushels are 30-pound purchases, which in some cases consisted of two 15-pound packages; and "bushels or more" are purchases of from 60 to 100 pounds. No purchases of more than 100 pounds were reported during the period studied. Regardless of quantity purchased, all prices are expressed on a per peck (15-pound) basis.

Where Consumers Bought Potatoes

Consumers named four general retail sources at which they bought potatoes: the large chain store groups 3/, other chain store groups including retailer associations, independent stores, and hucksters. The relative importance of these retail outlets is indicated in table 2. It shows that during the time the survey was in progress more families bought potatoes at stores of the large chain groups than at any one of the other retail outlets. However, as a source of less-than-peck and unbranded-peck packages, independent stores were equally as important as the large chain

2/ Data obtained during the first week of the survey (March 4-9) in many cases applied to purchases made the previous week (February 26-March 2); therefore, the last week in February was included in the price analysis. Purchases prior to February 26 extended over such a wide time period that adequate classification for price analysis purposes was not feasible.

3/ Great Atlantic and Pacific Tea Company, Economy Stores, and First National Stores.

groups. In the distribution of branded pecks the large chain groups were outstandingly in the lead. Reasons may be that branded pecks were not carried by many independent stores, or that consumers may have had good will for certain brands carried by stores of the large chain groups. About 10 percent of the families interviewed bought potatoes from hucksters.

Table 2. Where 1,497 families bought potatoes, by kind of package, Boston, Massachusetts, February 26 to April 6, 1940

Kind of package	Number of packages bought from -				Total
	Large chain groups	Other chain groups	Independent stores	Hucksters	
	Number	Number	Number	Number	Number
Less than pecks	170	48	168	67	453
Branded pecks	297	8	39	-	344
Unbranded pecks	243	80	258	82	663
Half bushels	8	2	5	4	19
Bushels or more	4	-	8	6	18
Total	722	138	478	159	1,497

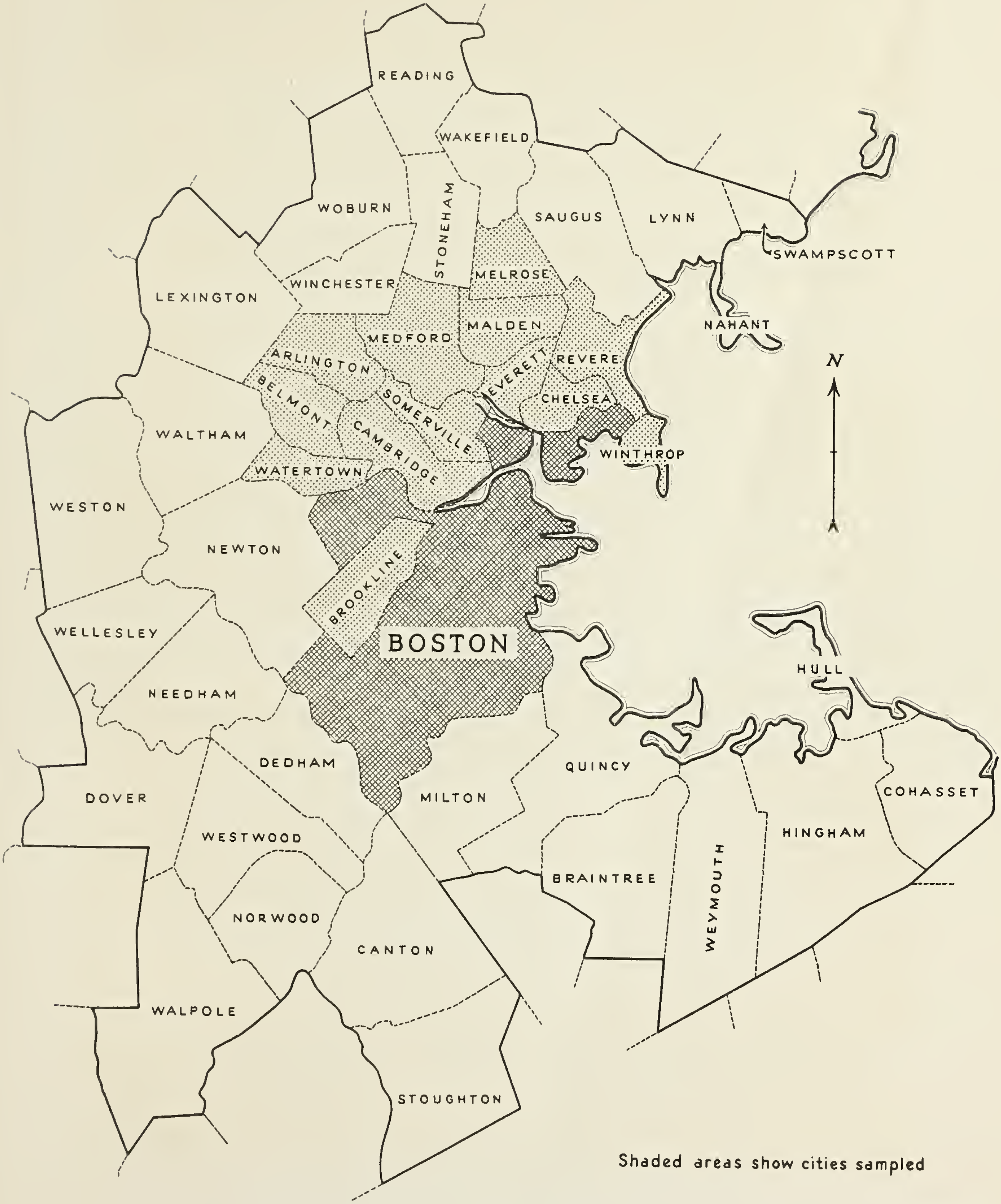
Kind of package	Percentage of packages bought from -				Total
	Large chain groups	Other chain groups	Independent stores	Hucksters	
	Percent	Percent	Percent	Percent	Percent
Less than pecks	37.5	10.6	37.1	14.8	100.0
Branded pecks	86.4	2.3	11.3	-	100.0
Unbranded pecks	36.6	12.1	38.9	12.4	100.0
Half bushels	42.1	10.5	26.3	21.1	100.0
Bushels or more	22.2	-	44.5	33.3	100.0
Total	48.2	9.2	32.0	10.6	100.0

Package Differences and Their Association with Retail Price

Retail packages of potatoes may differ in quantity, quality and size of contents, and in cost of container. All these differences may be reflected in the cost per type of package when prices are expressed on a per peck basis as in table 3. More than a quarter of the families that bought packages smaller than a peck paid at the

FIGURE 1

Boston Metropolitan District



Shaded areas show cities sampled

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rate of 46 cents or more per peck for potatoes. Some very small purchases, as of 2 or 3 pounds, were made at a price per peck in a few cases higher than 75 cents. On the other hand, about two-thirds of the few families who bought bushels or 100-pound bags paid 36 cents or less a peck for them. In a few instances these purchases were priced as low as 25 cents per peck. These differences suggest that the price of potatoes per peck tended to vary inversely with the quantity purchased, so that those families who, from necessity or choice, bought potatoes in quantities of less than a peck were likely to pay relatively high rates for them. This was especially true of purchases of less than one-half peck.

Table 3. What 1,497 families paid per peck for potatoes, by kind of package, Boston, Massachusetts, February 26 to April 6, 1940

Kind of package	Number of purchases by price per peck						Total
	33 cents or less	34-36 cents	37-39 cents	40-42 cents	43-45 cents	46 cents or more	
	Number	Number	Number	Number	Number	Number	Number
Less than pecks	18	21	107	97	86	124	453
Branded pecks	7	21	124	84	99	9	344
Unbranded pecks	67	87	308	98	76	27	663
Half bushels	3	1	10	4	1	-	19
Bushels or more	5	7	3	2	1	-	18
Total	100	137	552	285	263	160	1,497

Kind of package	Percentage of purchases by price per peck						Total
	33 cents or less	34-36 cents	37-39 cents	40-42 cents	43-45 cents	46 cents or more	
	Percent	Percent	Percent	Percent	Percent	Percent	Percent
Less than pecks	4.0	4.6	23.6	21.4	19.0	27.4	100.0
Branded pecks	2.0	6.1	36.1	24.4	28.8	2.6	100.0
Unbranded pecks	10.1	13.1	46.4	14.8	11.5	4.1	100.0
Half bushels	15.8	5.3	52.6	21.0	5.3	-	1/100.0
Bushels or more	27.8	38.9	16.7	11.1	5.5	-	1/100.0
Total	6.7	9.1	36.9	19.0	17.6	10.7	100.0

1/ Only 37 purchases, or about 2.5 percent of the total, were in quantities of 2 pecks (half bushels) or more during this period.

The data in table 3 shows that more than 39 cents per peck was paid by 55 percent of the families that bought pecks carrying a brand name as compared with only 30 percent of the families that bought pecks from bulk stock in ordinary store packages. On any specific marketing day the customer probably found that branded pecks were sold at higher prices than pecks put up in the store. 4/

Table 3 is also significant because it contains the first evidence that, regardless of package selected, consumers bought potatoes at a wide variety of prices between February 26 and April 6, 1940. These variations in price are too wide to be explained by changes in wholesale prices of potatoes (table 1) during the period sampled, and they point to the conclusion that potatoes could be purchased at various prices on February 26, on April 6, or on any intervening marketing day. Additional material on this question will be given later (p. 18).

The weighted average prices presented in table 4 are derived from the data in table 3 and summarize the effect of package and quantity differences upon the cost of potatoes for 1,497 Boston families. Tests indicate that the differences between these averages are significant because they are greater than those likely to result from sampling with the possible exception of the difference between the average peck price of unbranded pecks and of half bushels. Some housewives who bought half bushels probably bought them in 2 packages at no saving in price. The average size of the 19 families that made 1/2-bushel (30-pound) purchases was over seven persons per family, indicating that the food requirements of the family rather than price influenced the housewife to buy this quantity.

Table 4. Average prices per peck paid for 1,497 packages of potatoes, by kind of package, Boston, Massachusetts, February 26 to April 6, 1940

Kind of package	Purchases made	Average peck price
	Number	Cents
Less than pecks	453	42.6
Branded pecks	344	40.4
Unbranded pecks	663	38.4
Half bushels	19	37.5
Bushels or more	18	35.3
Total and average	1,497	40.1

4/ For discussion of quality and size differences in retail packages see reference cited in footnote 1(d), pp. 17-27.

Table 5. Number of purchases, by price per peck, by kind of package and by retail outlets, and average prices by retail outlets, Boston, Massachusetts, February 26 to April 6, 1940

Retail outlet	Purchases of less than pecks by price per peck						Total	Average price 1/
	33 cents or less	34-36 cents	37-39 cents	40-42 cents	43-45 cents	46 cents or more		
	Number	Number	Number	Number	Number	Number	Number	Cents
Large chain groups	7	9	46	45	29	34	170	41.7
Other chain groups	3	2	9	8	10	16	48	43.1
Independent stores	6	7	37	32	32	54	168	43.2
Hucksters	2	3	15	12	15	20	67	43.1
Total and average	18	21	107	97	86	124	453	42.6

Retail outlet	Purchases of branded pecks by price per peck						Total	Average price 1/
	33 cents or less	34-36 cents	37-39 cents	40-42 cents	43-45 cents	46 cents or more		
	Number	Number	Number	Number	Number	Number	Number	Cents
Large chain groups	6	18	111	68	90	4	297	40.3
Other chain groups	-	-	4	2	1	1	8	41.0
Independent stores	1	3	9	14	8	4	39	41.1
Hucksters	-	-	-	-	-	-	-	-
Total and average	7	21	124	84	99	9	344	40.4

Retail outlet	Purchases of unbranded pecks by price per peck						Total	Average price 1/
	33 cents or less	34-36 cents	37-39 cents	40-42 cents	43-45 cents	46 cents or more		
	Number	Number	Number	Number	Number	Number	Number	Cents
Large chain groups	24	39	146	22	11	1	243	37.3
Other chain groups	11	10	38	7	7	7	80	38.4
Independent stores	22	28	103	47	44	14	258	39.2
Hucksters	10	10	21	22	14	5	82	39.2
Total and average	67	87	308	98	76	27	663	38.4

1/ A few purchases were as low as 26 cents a peck, but 30 cents was used as an average for the "33 cents or less" price group. For the "46 cents or more" price group an average of 50 cents was used. This procedure is used in all cases where average prices are presented.

Association Between Price and Retail Outlets

In table 5, less-than-peck and peck purchases are classified according to price per peck and according to retail outlet. Upon the basis of these data average prices have been computed. Because of the relatively few purchases at the smaller chain store groups and from hucksters, average prices for these two groups may vary within ranges of more than 1 cent and, therefore, it cannot be said

that they differ significantly from the averages of either the large chain groups or of the independents. 5/ It appears, however, that bulk potatoes in both less-than-peck and in peck unbranded packages, sold at lower average prices at the large chain outlets than at independent stores. The data on branded pecks do not offer conclusive evidence that these packages were sold at higher prices at independent stores than at chain stores.

WEEKLY AND DAILY PRICES DURING MARCH 1940

Weekly Prices

Up to this point the element of time has been introduced into the discussion only in the limitation of the analysis to purchases made between February 26 and April 6, 1940. Tables 6 to 8 give purchases of less-than-pecks and pecks made between March 4 and March 30 summarized by price and by weeks of purchase. The question immediately arises whether or not a weekly subclassification of the data is defensible since the data were not gathered as weekly samples but were derived from two separate samples of somewhat more than 2 weeks each. It was assumed that the weekly data might be representative because the enumerators gathered the information daily in widely diversified sections of the city, and because a previous release 6/ indicated that two-thirds of the population of the area sampled might be expected to buy potatoes at least once in any average week.

To test the representativeness of the weekly data, comparisons were made of the proportions of families buying peck packages in each income, race or nationality, and size of family group in each week in March with peck purchases of these groups for the sampling period as a whole. In all comparisons, except of purchases of Negroes (the smallest population group) for the week of March 4-9, the differences found were so small that they could easily have arisen through chance fluctuations in sampling. Therefore, an analysis of these tables should reveal whether there was any advance in the retail price of potatoes during March and whether it was more or less pronounced than the change in wholesale potato prices quoted in table 1, p. 4.

5/ Standard errors of the means were used as tests of significance for differences between averages.

6/ See reference cited in footnote 1(b), p. 10.

Table 6. Number and percentage of purchases made at all types of retailers, by cents per peck and kind of package, and average weekly price, during 4 weeks in March 1940, Boston, Massachusetts

Week of -	Less than pecks at price per peck of -					Total	Percentage of less than pecks at price per peck of -					Total	Average price
	36 cents or less	37-39 cents	40-42 cents	43-45 cents	46 cents or more		36 cents or less	37-39 cents	40-42 cents	43-45 cents	46 cents or more		
	Number	Number	Number	Number	Number	Number	Percent	Percent	Percent	Percent	Percent	Percent	Cents
March:													
4 to 9	15	23	18	15	16	87	17.2	26.4	20.7	17.3	18.4	100.0	40.9
11 to 16	10	26	23	15	25	99	10.2	26.3	23.2	15.1	25.2	100.0	42.1
18 to 23	6	25	22	25	36	114	5.2	22.0	19.3	21.9	31.6	100.0	43.4
25 to 30	4	18	21	20	33	96	4.1	18.8	21.9	20.8	34.4	100.0	43.9

Week of -	Branded pecks at price per peck of -					Total	Percentage of branded pecks at price per peck of -					Total	Average price
	36 cents or less	37-39 cents	40-42 cents	43-45 cents	46 cents or more		36 cents or less	37-39 cents	40-42 cents	43-45 cents	46 cents or more		
	Number	Number	Number	Number	Number	Number	Percent	Percent	Percent	Percent	Percent	Percent	Cents
March:													
4 to 9	11	29	18	14	4	76	14.4	38.2	23.7	18.4	5.3	100.0	39.8
11 to 16	6	39	16	12	2	75	8.0	52.0	21.3	16.0	2.7	100.0	39.7
18 to 23	7	25	17	18	1	68	10.2	36.8	25.0	26.5	1.5	100.0	40.1
25 to 30	1	19	22	45	2	89	1.1	21.3	24.7	50.6	2.3	100.0	42.0

Week of -	Unbranded pecks at price per peck of -					Total	Percentage of unbranded pecks at price per peck of -					Total	Average price
	36 cents or less	37-39 cents	40-42 cents	43-45 cents	46 cents or more		36 cents or less	37-39 cents	40-42 cents	43-45 cents	46 cents or more		
	Number	Number	Number	Number	Number	Number	Percent	Percent	Percent	Percent	Percent	Percent	Cents
March:													
4 to 9	36	59	16	15	3	129	27.9	45.8	12.4	11.6	2.3	100.0	37.9
11 to 16	32	58	25	9	9	133	24.0	43.6	18.8	6.8	6.8	100.0	38.5
18 to 23	33	92	19	23	1	168	19.6	54.8	11.3	13.7	.6	100.0	38.2
25 to 30	21	72	29	19	7	148	14.2	48.7	19.6	12.8	4.7	100.0	39.3

Table 7. Number and percentage of purchases reported made at stores in large chain groups, by cents per peck and by kind of package and average weekly price 1/, during 4 weeks in March 1940, Boston, Massachusetts

Week of -	Less than pecks at price per peck of - 36 cents or less	37-39 cents	40-42 cents	43-45 cents	46 cents or more	Total	Percentage of less than pecks at price per peck of - 36 cents or less	37-39 cents	40-42 cents	43-45 cents	46 cents or more	Total	Average price
	Number	Number	Number	Number	Number	Number	Percent	Percent	Percent	Percent	Percent	Percent	Cents
March:													
4 to 9	6	12	7	5	2	32	18.7	37.5	21.9	15.7	6.2	100.0	39.5
11 to 16	5	8	8	5	5	31	16.2	25.8	25.8	16.1	16.1	100.0	40.7
18 to 23	-	13	12	9	10	44	-	29.5	27.3	20.5	22.7	100.0	42.8
25 to 30	1	8	12	7	10	38	2.6	21.1	31.6	18.4	26.3	100.0	43.1

Week of -	Branded pecks at price per peck of - 36 cents or less	37-39 cents	40-42 cents	43-45 cents	46 cents or more	Total	Percentage of branded pecks at price per peck of - 36 cents or less	37-39 cents	40-42 cents	43-45 cents	46 cents or more	Total	Average price
	Number	Number	Number	Number	Number	Number	Percent	Percent	Percent	Percent	Percent	Percent	Cents
March:													
4 to 9	9	24	18	11	3	65	13.9	36.9	27.7	16.9	4.6	100.0	39.8
11 to 16	5	35	15	11	-	66	7.6	53.0	22.7	16.7	-	100.0	39.5
18 to 23	6	23	10	16	-	55	10.9	41.8	18.2	29.1	-	100.0	39.8
25 to 30	1	17	17	42	1	78	1.3	21.8	21.8	53.8	1.3	100.0	41.9

Week of -	Unbranded pecks at price per peck of - 36 cents or less	37-39 cents	40-42 cents	43-45 cents	46 cents or more	Total	Percentage of unbranded pecks at price per peck of - 36 cents or less	37-39 cents	40-42 cents	43-45 cents	46 cents or more	Total	Average price
	Number	Number	Number	Number	Number	Number	Percent	Percent	Percent	Percent	Percent	Percent	Cents
March:													
4 to 9	12	25	5	2	-	44	27.2	56.8	11.4	4.6	-	100.0	37.1
11 to 16	15	31	5	-	1	52	28.9	59.6	9.6	-	1.9	100.0	37.1
18 to 23	14	45	2	6	-	67	20.9	67.2	3.0	8.9	-	100.0	37.6
25 to 30	6	32	7	3	-	48	12.5	66.7	14.6	6.2	-	100.0	38.4

1/ The tendency for chain stores to price at odd figures and the fact that the data are tabulated in 3-cent price groups has some effect upon the averages, probably indicating less price change than actually occurred.

Table 8. Number and percentage of purchases reported made at independent stores, by cents per peck, and kind of package, and average weekly price, during 4 weeks in March 1940, Boston, Massachusetts

Week of –	Less than pecks at price per peck of –					Total	Percentage of less than pecks at price per peck of –					Total	Average price
	36 cents or less	37-39 cents	40-42 cents	43-45 cents	46 cents or more		36 cents or less	37-39 cents	40-42 cents	43-45 cents	46 cents or more		
	Number	Number	Number	Number	Number	Number	Percent	Percent	Percent	Percent	Percent	Percent	Cents
March:													
4 to 9	6	9	8	8	7	38	15.7	23.7	21.1	21.1	18.4	100.0	41.4
11 to 16	2	10	11	5	15	43	4.6	23.3	25.6	11.6	34.9	100.0	43.4
18 to 23	3	6	5	8	16	38	7.8	15.8	13.2	21.1	42.1	100.0	44.2
25 to 30	2	5	5	7	10	29	6.8	17.3	17.3	24.1	34.5	100.0	43.7
Week of –	Branded pecks at price per peck of –					Total	Percentage of branded pecks at price per peck of –					Total	Average price
	36 cents or less	37-39 cents	40-42 cents	43-45 cents	46 cents or more		36 cents or less	37-39 cents	40-42 cents	43-45 cents	46 cents or more		
	Number	Number	Number	Number	Number	Number	Percent	Percent	Percent	Percent	Percent	Percent	Cents
March:													
4 to 9	2	4	-	2	1	9	22.2	44.5	-	22.2	11.1	100.0	39.4
11 to 16	1	3	1	1	1	7	14.3	42.8	14.3	14.3	14.3	100.0	40.6
18 to 23	1	1	5	2	1	10	10.0	10.0	50.0	20.0	10.0	100.0	41.6
25 to 30	-	1	5	3	1	10	-	10.0	50.0	30.0	10.0	100.0	42.5
Week of –	Unbranded pecks at price per peck of –					Total	Percentage of unbranded pecks at price per peck of –					Total	Average price
	36 cents or less	37-39 cents	40-42 cents	43-45 cents	46 cents or more		36 cents or less	37-39 cents	40-42 cents	43-45 cents	46 cents or more		
	Number	Number	Number	Number	Number	Number	Percent	Percent	Percent	Percent	Percent	Percent	Cents
March:													
4 to 9	11	17	4	9	3	44	25.0	38.6	9.1	20.5	6.8	100.0	39.0
11 to 16	15	16	10	4	3	48	31.3	33.3	20.8	8.3	6.3	100.0	38.2
18 to 23	11	35	12	14	1	73	15.0	47.9	16.5	19.2	1.4	100.0	39.0
25 to 30	9	26	16	11	2	64	14.1	40.6	25.0	17.2	3.1	100.0	39.5

In table 6 all the purchases made in the designated weeks are observed regardless of where the potatoes were bought. The percentages for less than pecks show that purchases at less than 40 cents a peck decreased consistently from the first to the last week of March whereas percentages of purchases at 46 cents or more increased consistently. The average advance per peck during March for purchases of less than 15 pounds was 3 cents.

Prices paid for branded pecks indicate no change in price between the first and second week of March. The third week shows an increase in the proportion of packages bought at from 43 to 45 cents and by the fourth week an advance in price is strongly indicated. To judge from the average prices, advances in price of branded peck packages occurred mostly in the latter half of the month.

The price percentages for unbranded pecks show a consistent decrease in the proportions of purchases made at 36 cents or less. Purchases in unbranded pecks, however, show the least evidence of price advance.

Table 7 gives the weekly price distribution for purchases made at stores of the large chain groups and table 8 gives a similar distribution for purchases at independent stores. These tables were assembled to show whether price changes at these retail outlets were similar. Diversity of ownership, management, and type and size of store might be expected to produce less consistency in price for the independent store group than for the chain stores.

Prices at chain stores for packages smaller than a peck appeared to have advanced somewhat each week (table 7), whereas prices for similar packages at independent stores appeared to have advanced rather sharply from the first to the second week of March; afterward no price change is clearly defined (table 8).

Since more than 80 percent of the purchases of branded pecks were made at chain stores, prices for these packages (table 7) indicate about the same changes as those for all branded packages from whatever source (table 6). The relatively few purchases of branded peck packages at independent stores suggest a gradual advance in price during March at these outlets.

With the exception that fewer purchases were made at 36 cents or less at both these types of outlets during the latter half than the first half of March, no pronounced change in price of unbranded pecks was evident.

Tables 6 to 8 indicate that average retail prices of potatoes advanced during March. However, the advance was by no means uniform for all kinds of packages, being most pronounced for less-than-peck

packages, clearly indicated for packages carrying a brand name, and least in evidence for 15-pound packages taken from bulk stock. For less-than-peck packages the average advance during March was 3 cents a peck (table 6), which is equivalent to about 20 cents per 100 pounds. This is not out of line with the advance in wholesale prices (table 1) especially if some pyramiding of price advances took place. Some indication of how consumers reacted to these price changes will be presented later.

Retail Prices on Specific Marketing Days

The data presented have shown a rather wide range in prices for all types of retail packages. This range was not caused by purchase prices averaging less early in March than in the latter part of the month. A wide range of prices existed on any one marketing day owing to differences in quality of variety, in type of store, or to some other factor. In some instances, no reason for differences in prices was apparent.

Since Saturday was found to be the most popular marketing day for potatoes, 7/ purchases and prices for two Saturdays in March are shown (tables 9 and 10). Both tabulations show that on a specific marketing day potatoes could be purchased at about the same wide variety of prices per peck as during the longer time periods represented in preceding tables. Although a wide price range was indicated on both Saturdays, the percentages of purchases falling into the several price groups changed from March 9 to March 23, indicating that average prices on the later day tended to be higher than those of 2 weeks earlier.

In table 11 the complete price ranges of peck and less-than-peck packages are classified by vendor for purchases made on March 9 and March 23, 1940. Potatoes in less-than-peck packages were bought at the widest price ranges on both of these Saturdays, while branded pecks were available at a much narrower range in price. In most instances, purchases made at independent stores or from hucksters were at a wider price range than those made at chain stores.

These price distributions by type of package for March 9 and March 23 suggest that when a housewife went to market to replenish her supply of potatoes she was able to have some choice in the price she paid for the product, regardless of the kind of package she decided upon, but that prices for less than pecks varied most.

7/ See reference cited in footnote 1(b), p. 13.

Table 9. Number and percentage of purchases of potatoes at designated prices per peck, by types of packages, Boston, Massachusetts, March 9, 1940

Type of package	Purchases at a per peck price of - 33 cents or less	34-36 cents	37-39 cents	40-42 cents	43-45 cents	46 cents or more	Total	Percentage of purchases at a per peck price of - 33 cents or less	34-36 cents	37-39 cents	40-42 cents	43-45 cents	46 cents or more	Total
	Number	Number	Number	Number	Number	Number	Number	Percent	Percent	Percent	Percent	Percent	Percent	Percent
Less than pecks	4	3	9	7	6	10	39	10.2	7.7	23.1	18.0	15.4	25.6	100.0
Branded pecks	4	5	12	11	7	1	40	10.0	12.5	30.0	27.5	17.5	2.5	100.0
Unbranded pecks	13	14	36	13	10	4	90	14.4	15.6	40.0	14.4	11.1	4.5	100.0
More than pecks	3	-	2	-	-	-	5							1/
Total and average	24	22	59	31	23	15	174	13.9	12.6	33.9	17.8	13.2	8.6	100.0

1/ Only 5 purchases.

Table 10. Number and percentage of purchases of potatoes at designated prices per peck, by types of packages, Boston, Massachusetts, March 23, 1940

Type of package	Purchases at a per peck price of - 33 cents or less	34-36 cents	37-39 cents	40-42 cents	43-45 cents	46 cents or more	Total	Percentage of purchases at a per peck price of - 33 cents or less	34-36 cents	37-39 cents	40-42 cents	43-45 cents	46 cents or more	Total
	Number	Number	Number	Number	Number	Number	Number	Percent	Percent	Percent	Percent	Percent	Percent	Percent
Less than pecks	1	2	18	12	10	19	62	1.6	3.2	29.0	19.4	16.1	30.7	100.0
Branded pecks	3	3	15	12	16	-	49	6.1	6.1	30.6	24.5	32.7	-	100.0
Unbranded pecks	9	8	60	11	15	1	104	8.7	7.7	57.7	10.6	14.4	.9	100.0
More than pecks	-	-	1	-	-	-	1							1/
Total and average	13	13	94	35	41	20	216	6.0	6.0	43.5	16.2	19.0	9.3	100.0

1/ Only 1 purchase.

Table 11. Price ranges per peck for purchases on specified days, by kind of package and by vendor, Boston, Massachusetts

Kind of package	March 9, 1940		March 23, 1940	
	Chain stores 1/	Independents and hucksters	Chain stores 1/	Independents and hucksters
	Cents	Cents	Cents	Cents
Less than pecks	28-75	24-75	30-70	34-57
Branded pecks	29-48	2/	32-45	29-45
Unbranded pecks	25-45	25-55	25-45	25-49

1/ Includes 3 large chain organizations and a number of small chains.
2/ Less than 5 purchases.

The price distributions of daily, weekly, and total purchases are summarized in table 12. Since price ranges for March 9 and March 23 were as wide as those for the entire sampling period, clearly the forces leading to a variety of prices for potatoes exerted a daily influence in the retail market. Such daily price characteristics are of concern to marketing agencies interested in the development of a price policy that is based upon the supply and the preferences and the buying abilities of consumer groups.

RETAIL PRICES AS RELATED TO POPULATION GROUPS

Race or Nationality

Evidence has been presented that on any marketing day consumers in Boston could buy potatoes at various prices (p. 16). Since race or nationality, size of family, and family income may be associated with the prices paid for potatoes, the data were examined with reference to these population characteristics.

In table 13 prices paid per peck, by kind of package, were classified according to race or nationality groups in Boston. 8/ This table shows that the majority of housewives paid 40 cents or more per peck for less-than-peck packages during the period indicated, but there is also evidence that Negro and Italian families were the least likely of the population groups to pay this relatively high price. The Negro group had a marked concentration of small purchases at from 37 to 39 cents a peck.

For branded pecks no association is apparent between prices paid and race or nationality.

8/ See reference cited in footnote 1(a), p. 3.

Table 12. Daily, weekly, and average percentage distributions of purchases of potatoes made at various prices per peck, Boston, Massachusetts, February 26 to April 6, 1940

Day or time period	Number of purchases by price per peck						Total
	33 cents or less	34-36 cents	37-39 cents	40-42 cents	43-45 cents	46 cents or more	
	Number	Number	Number	Number	Number	Number	Number
March:							
9	24	22	59	31	23	15	174
23	13	13	94	35	41	20	1/ 216
March:							
4 to 9	30	36	113	53	44	23	299
11 to 16	23	30	126	66	36	36	317
18 to 23	21	25	144	58	66	38	352
25 to 30	9	17	111	72	84	42	335
February 26 to April 6	100	137	552	285	263	160	1,497

Day or time period	Percentage of purchases by price per peck						Total
	33 cents or less	34-36 cents	37-39 cents	40-42 cents	43-45 cents	46 cents or more	
	Percent	Percent	Percent	Percent	Percent	Percent	Percent
March:							
9	13.9	12.6	33.9	17.8	13.2	8.6	100.0
23	6.0	6.0	43.5	16.2	19.0	9.3	100.0
March:							
4 to 9	10.0	12.1	37.8	17.7	14.7	7.7	100.0
11 to 16	7.2	9.5	39.7	20.8	11.4	11.4	100.0
18 to 23	6.0	7.1	40.9	16.5	18.7	10.8	100.0
25 to 30	2.7	5.1	33.1	21.5	25.1	12.5	100.0
February 26 to April 6	6.7	9.1	36.9	19.0	17.6	10.7	100.0

1/ Saturday before Easter.

Table 13. Number and percentage of purchases, by cents per peck, by kind of package, and by race or nationality, Boston, Massachusetts, February 26 to April 6, 1940

Race or nationality	Less than pecks by price per peck: 36 cents or less	37-39 cents	40 cents or more	Total	Percentage of less than pecks by price per peck: 36 cents or less	37-39 cents	40 cents or more	Total
	Number	Number	Number	Number	Percent	Percent	Percent	Percent
Irish	7	10	59	76	9.2	13.2	77.6	100.0
Italian	7	16	34	57	12.3	28.1	59.6	100.0
Jewish	3	6	25	34	8.8	17.7	73.5	100.0
Negro	3	20	13	36	8.3	55.6	36.1	100.0
Unclassified white	19	55	176	250	7.6	22.0	70.4	100.0
Total and average	39	107	307	453	8.6	23.6	67.8	100.0

Race or nationality	Branded pecks by price per peck: 36 cents or less	37-39 cents	40 cents or more	Total	Percentage of branded pecks by price per peck: 36 cents or less	37-39 cents	40 cents or more	Total
	Number	Number	Number	Number	Percent	Percent	Percent	Percent
Irish	9	34	46	89	10.1	38.2	51.7	100.0
Italian	2	8	14	24	8.3	33.3	58.4	100.0
Jewish	1	5	8	14	7.1	35.7	57.2	100.0
Negro	-	1	1	2				1/
Unclassified white	16	76	123	215	7.5	35.3	57.2	100.0
Total and average	28	124	192	344	8.1	36.1	55.8	100.0

Race or nationality	Unbranded pecks by price per peck: 36 cents or less	37-39 cents	40 cents or more	Total	Percentage of unbranded pecks by price per peck: 36 cents or less	37-39 cents	40 cents or more	Total
	Number	Number	Number	Number	Percent	Percent	Percent	Percent
Irish	35	65	48	148	23.7	43.9	32.4	100.0
Italian	34	28	16	78	43.6	35.9	20.5	100.0
Jewish	11	19	11	41	26.8	46.4	26.8	100.0
Negro	8	12	1	21	38.1	57.1	4.8	100.0
Unclassified white	66	184	125	375	17.6	49.1	33.3	100.0
Total and average	154	308	201	663	23.2	46.5	30.3	100.0

1/ Less than 5 purchases

During the sampling period potatoes in unbranded peck packages were bought by more Boston families than those in any other kind of package and almost half of these purchases were made at from 37 to 39 cents per peck. When prices paid for this kind of package are classified according to race or nationality some significant variations are seen in the percentage distribution (table 13). Italian families bought more unbranded pecks at 36 cents or less than at any higher price, whereas Negro families made the highest proportion of their purchases at from 37 to 39 cents a peck, but both groups made relatively few purchases at 40 cents or more a peck.

An analysis of the income characteristics of the 1,775 families reporting the use of potatoes in March and early April 1940, revealed that the average weekly income of Negro or of Italian families in Boston was significantly lower than those of the other race or nationality groups. Probably the limitations of their expenditures for food led them to purchase potatoes at comparatively low prices. In planning a merchandising program for areas where Italian or Negro families are heavily represented, it should be borne in mind that low-priced packages of potatoes were purchased by relatively large proportions of these groups of consumers.

Size of Family

An earlier release on this study 9/ has pointed out that small families were likely to buy small packages of potatoes but that, as the families increased in size, the percentage making small purchases declined. Table 14 indicates that 8 of every 10 families reporting less-than-peck purchases had from 1 to 4 persons per family. Approximately from 68 to 73 percent of these relatively small families paid at the rate of 40 cents or more per peck for these packages as compared with 57 to 60 percent of the families of 5 or more persons. Regardless of family size, more purchases of less than pecks were made at 40 cents or more than at lower prices.

The data do not show that size of family was a factor in the purchase of branded packages at 40 cents or more a peck.

Unbranded pecks were bought by many families of from two to seven or more persons. The data show that, as the number of persons per family increased, the proportion of families paying 40 cents or more for these packages tended to decrease and that the reverse was true for purchases at from 37 to 39 cents a peck.

9/ Reference cited in footnote 1(b), pp. 6-7.

Table 14. Number and percentage of purchases, by cents per peck, by kind of package, and by number of persons in family, Boston, Massachusetts February 26 to April 6, 1940

Persons in family	Less than pecks by price per peck			Total	Percentage of less than pecks by price per peck			Total
	36 cents or less	37-39 cents	40 cents or more		36 cents or less	37-39 cents	40 cents or more	
	Number	Number	Number	Number	Percent	Percent	Percent	Percent
1	2	5	17	24	8.3	20.8	70.9	100.0
2	13	38	108	159	8.2	23.9	67.9	100.0
3	10	25	80	115	8.7	21.7	69.6	100.0
4	3	19	59	81	3.7	23.4	72.9	100.0
5	7	12	26	45	15.6	26.7	57.7	100.0
6	1	5	9	15	6.7	33.3	60.0	100.0
7 or more	3	3	8	14	21.4	21.5	57.1	100.0
Total and average	39	107	307	453	8.6	23.6	67.8	100.0

Persons in family	Branded pecks by price per peck			Total	Percentage of branded pecks by price per peck			Total
	36 cents or less	37-39 cents	40 cents or more		36 cents or less	37-39 cents	40 cents or more	
	Number	Number	Number	Number	Percent	Percent	Percent	Percent
1	-	3	-	3				1/
2	2	14	24	40	5.0	35.0	60.0	100.0
3	4	25	48	77	5.2	32.5	62.3	100.0
4	6	36	42	84	7.1	42.9	50.0	100.0
5	5	25	33	63	8.0	39.7	52.3	100.0
6	6	5	22	33	18.2	15.2	66.6	100.0
7 or more	5	16	23	44	11.3	36.4	52.3	100.0
Total and average	28	124	192	344	8.1	36.1	55.8	100.0

Persons in family	Unbranded pecks by price per peck			Total	Percentage of unbranded pecks by price per peck			Total
	36 cents or less	37-39 cents	40 cents or more		36 cents or less	37-39 cents	40 cents or more	
	Number	Number	Number	Number	Percent	Percent	Percent	Percent
1	1	3	-	4				1/
2	27	33	35	95	28.4	34.7	36.9	100.0
3	28	50	49	127	22.0	39.4	38.6	100.0
4	30	79	51	160	18.8	49.4	31.8	100.0
5	20	56	32	108	18.6	51.8	29.6	100.0
6	23	36	12	71	32.4	50.7	16.9	100.0
7 or more	25	51	22	98	25.6	52.1	22.3	100.0
Total and average	154	308	201	663	23.2	46.4	30.4	100.0

1/ Less than 5 purchases.

An analysis of family income by number of persons per family indicated that, on the average, the weekly family incomes of families with five or more members were no higher than those of families with three or four members. Undoubtedly a family of six persons with a weekly income of $32 would need to operate on a more restricted food budget than one of three persons with a similar weekly income. The smaller income per person characteristic of large families probably explains why they bought more unbranded packages at comparatively low prices than did smaller families.

Family Income per Week

In the preceding comparisons between price paid and race, nationality, and family-size groups, it was pointed out that the per capita incomes of families were probably associated most closely with the decisions of housewives to buy high-, low-, or average-priced packages of potatoes. It is, therefore, to be expected that higher-income families would buy a larger percentage of high-priced packages of potatoes than low-income families; table 15 gives some evidence to support this assumption.

Families that bought potatoes in quantities of less than a peck (table 15) were more likely to pay 40 cents or more per peck for them than a lower price, regardless of whether their weekly incomes were $15 or less, or $56 or more. However, the proportion of such purchases at 40 cents or more increased with income, whereas the proportion of purchases at from 37 to 39 cents decreased as family incomes became larger.

The percentage distribution for branded pecks does not show any clearly defined relationship between income and price paid. It has previously been noted that for packages carrying brand names no consistent association was found between price and race or nationality (table 13), or price and size of family (table 14). The implication, therefore, is that the percentages for branded-peck purchases may be significant not because any such relationship exists but because it is absent. After the decision had been made to purchase potatoes in a package carrying a brand name, price may have been a secondary consideration. 10/ Also since more than 80 percent of the purchases of branded pecks were made at chain stores where prices tended to be alike, the prices of branded packages did not offer the same opportunity for choice on a particular day as did prices for bulk potatoes.

10/ See table 17.

Table 15. Number and percentage of purchases, by cents per peck, by kind of package, and by family income, Boston, Massachusetts, February 26 to April 6, 1940

Family income per week	Less than pecks by price per peck			Total	Percentage of less than pecks by price per peck			Total
	36 cents or less	37-39 cents	40 cents or more		36 cents or less	37-39 cents	40 cents or more	
	Number	Number	Number	Number	Percent	Percent	Percent	Percent
$15 or less	3	23	30	56	5.3	41.1	53.6	100.0
$16 - $25	18	36	66	120	15.0	30.0	55.0	100.0
$26 - $35	10	26	69	105	9.5	24.8	65.7	100.0
$36 - $45	2	11	60	73	2.7	15.1	82.2	100.0
$46 - $55	4	8	47	59	6.8	13.6	79.6	100.0
$56 or more	2	3	35	40	5.0	7.5	87.5	100.0
Total and average	39	107	307	453	8.6	23.6	67.8	100.0

Family income per week	Branded pecks by price per peck			Total	Percentage of branded pecks by price per peck			Total
	36 cents or less	37-39 cents	40 cents or more		36 cents or less	37-39 cents	40 cents or more	
	Number	Number	Number	Number	Percent	Percent	Percent	Percent
$15 or less	1	9	8	18	5.6	50.0	44.4	100.0
$16 - $25	6	17	48	71	8.5	23.9	67.6	100.0
$26 - $35	9	45	66	120	7.5	37.5	55.0	100.0
$36 - $45	6	27	33	66	9.1	40.9	50.0	100.0
$46 - $55	3	16	22	41	7.3	39.0	53.7	100.0
$56 or more	3	10	15	28	10.7	35.7	53.6	100.0
Total and average	28	124	192	344	8.1	36.1	55.8	100.0

Family income per week	Unbranded pecks by price per peck			Total	Percentage of unbranded pecks by price per peck			Total
	36 cents or less	37-39 cents	40 cents or more		36 cents or less	37-39 cents	40 cents or more	
	Number	Number	Number	Number	Percent	Percent	Percent	Percent
$15 or less	30	20	10	60	50.0	33.3	16.7	100.0
$16 - $25	51	89	36	176	29.0	50.6	20.4	100.0
$26 - $35	35	121	68	224	15.6	54.0	30.4	100.0
$36 - $45	24	51	42	117	20.5	43.6	35.9	100.0
$46 - $55	11	21	31	63	17.5	33.3	49.2	100.0
$56 or more	3	6	14	23	13.0	26.1	60.9	100.0
Total and average	154	308	201	663	23.2	46.5	30.3	100.0

The last section of table 15 gives the distribution of prices paid for unbranded peck packages as associated with family income. From the standpoint of total number of purchases, this is the most important package. Table 15 shows a steplike progression of percentages from the lowest through the medium to the highest priced groups. For example, families with weekly incomes of $15 or less made the highest proportion of their purchases of unbranded pecks at 36 cents or less a peck; families with weekly incomes between $16 and $36, at from 37 to 39 cents a peck; and those in the highest-income group made most of their purchases at 40 cents or more a peck. The net effects of these price preferences are seen in the column for packages at 40 cents or more where the percentages of purchases increased consistently with family income.

These percentage distributions for unbranded peck packages are illustrated in figure 2. The opposite slopes of the percentage distributions for the groups buying at 36 cents or less as compared with the groups buying at 40 cents or more indicate that, for many families, price became of less and less importance as family income per week increased. The group paying from 37 to 39 cents (figure 2) shows another aspect of consumer behavior. Many families of all income groups up to $56 or more bought potatoes within this price range, hence it appears that adequate food budgets do not necessarily make families willing to pay relatively high prices for potatoes.

Unbranded-peck packages - usually put up by the retailer in brown paper bags either at time of or in advance of consumer purchase - may differ in variety, quality, and size of the potatoes. Probably families who paid 40 cents or more for such packages for the most part were attempting to satisfy some preferences in these characteristics. 11/ In all likelihood families who paid 36 cents or less were attempting to purchase potatoes at as low a price as possible regardless of any such preference, or they had become convinced by purchasing experience that price alone was not a reliable guide to desirable potatoes.

That the association between income and price was most pronounced for unbranded-peck and for less-than-peck purchases is also apparent in table 16, which gives the average price per peck which families with different incomes per week paid for potatoes by kind of package. For various reasons, about 75 percent of the 1,497 families who gave price information bought potatoes from bulk stock in pecks or smaller packages. The relationships (table 16) between income and average prices paid for these packages indicate that a significant number of those families whose food budgets allowed it would probably be willing to pay a premium for a package of potatoes which met their preferences. The data indicate that the largest proportion preferred peck packages but that others wanted a smaller package.

11/ See reference cited in footnote 1(a).

FIGURE 2

Percentage of Purchases of Unbranded Peck Packages by Price and by Income Groups, for Potatoes Bought in the Boston Metropolitan Area, February 26 to April 6, 1940

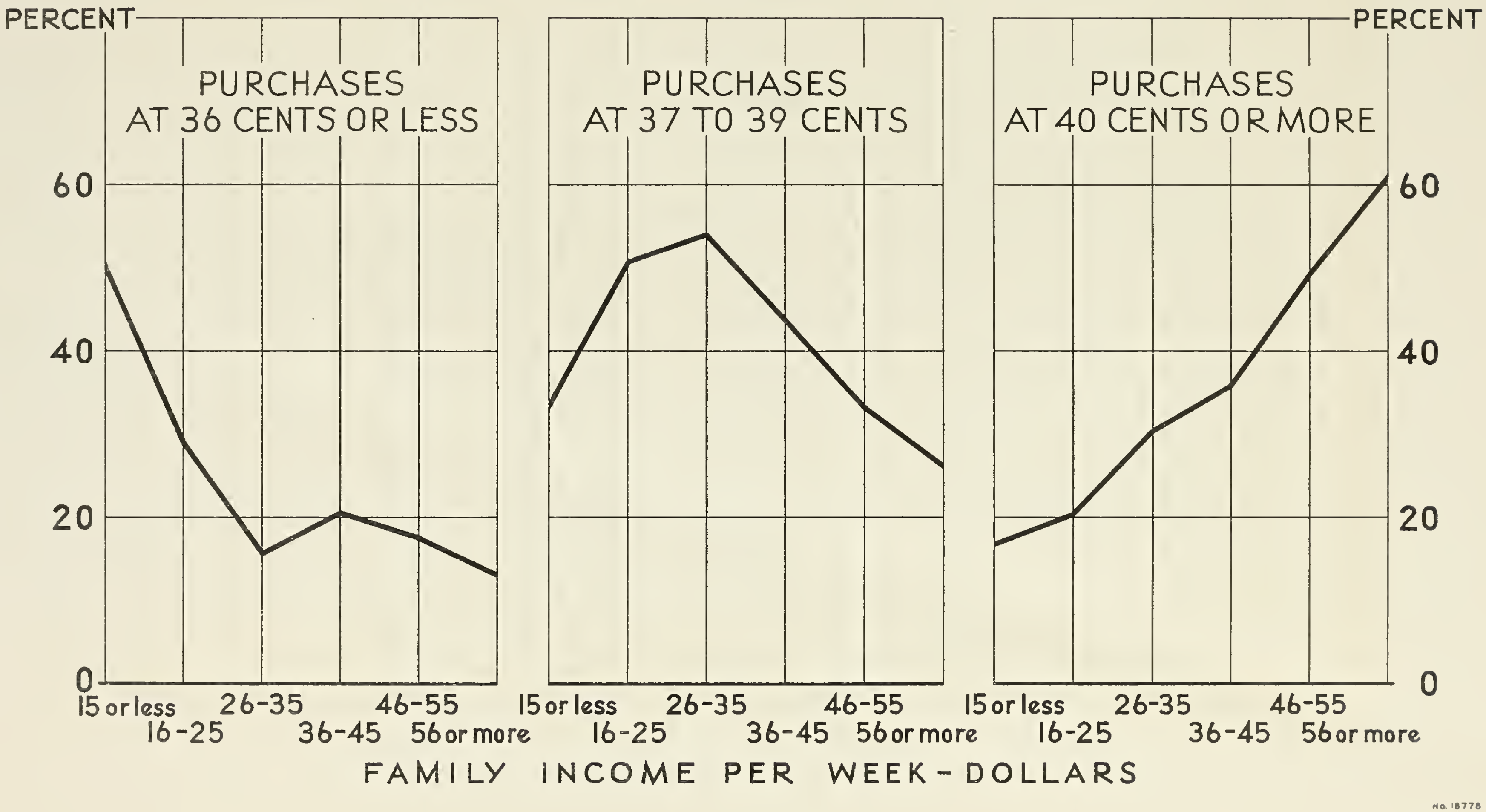

Table 16. Average prices per peck paid by 1,497 families, by kind of package and by income groups, Boston, Massachusetts, February 26 to April 6, 1940

Family income per week	Weighted average price per peck				
	Less than pecks	Branded pecks	Unbranded pecks	Half bushels 1/	Bushels or more 1/
	Cents	Cents	Cents	Cents	Cents
$15 or less	41.8	39.6	36.1	35.3	38.0
$16 - $25	41.1	41.0	37.3	35.3	33.8
$26 - $35	42.1	40.5	38.7	40.2	36.3
$36 - $45	44.8	40.1	38.9	40.0	35.1
$46 - $55	43.4	40.3	40.7	38.0	38.0
$56 or more	44.6	39.9	42.0	38.0	35.0
Average	42.6	40.4	38.4	37.5	35.3
Number of purchases	453	344	663	19	18

1/ Attention is directed to the small number of purchases of more than a peck. Prices for these packages are shown merely to give a complete presentation of the data.

A comparison between the average prices paid for branded and unbranded pecks also reveals this tendency. Table 16 shows that families with incomes of $25 a week or less, who bought branded pecks, paid an average premium of more than 3 cents for them, that families with incomes from $26 to $45 a week paid a premium of from 1 to 2 cents, and that families with incomes of $46 or more, who bought branded pecks, on the average, paid less per peck than did families of similar income who bought pecks from bulk stock. It is apparent (table 16) that the differentials between averages of peck packages of these two kinds arose because families with higher incomes, on the average, paid more for unbranded peck packages than did families with low incomes.

These relationships indicate that a sizable proportion of the families in Boston paid comparatively high prices in attempts to satisfy their preferences for potatoes. Some did it by buying branded packages, others by selection from bulk stocks.

When branded packages were purchased, family income appeared to be an influencing factor in the decision to buy or not to buy potatoes in a package carrying a brand name (table 17). Once the decision to buy branded packages was made, no consistent relationship between average prices paid and income was manifest.

AVERAGE PRICES PAID FOR POTATOES COMPARED WITH FAMILY INCOME

It has been shown that families who bought potatoes in quantities of less than a peck were likely to pay a higher average price per peck than those who bought peck packages, and that those who bought peck packages carrying a brand name paid more than those who bought pecks in ordinary store bags. It is of interest, therefore, to know whether the types of packages purchased showed any relation to family income. The data available on this question are summarized in table 17.

Table 17. Number and percentage of purchases of potatoes by kind of package and by family income, Boston, Massachusetts, February 26 to April 6, 1940

Family income per week	Number of purchases					Total
	Less than pecks	Branded pecks	Unbranded pecks	Half bushels	Bushels or more	
	Number	Number	Number	Number	Number	Number
$15 or less	56	18	60	3	1	138
$16 - $25	120	71	176	6	5	378
$26 - $35	105	120	224	4	3	456
$36 - $45	73	66	117	3	7	266
$46 - $55	59	41	63	2	1	166
$56 or more	40	28	23	1	1	93
Total	453	344	663	19	18	1,497

Family income per week	Percentage of purchases					Total
	Less than pecks	Branded pecks	Unbranded pecks	Half bushels	Bushels or more	
	Percent	Percent	Percent	Percent	Percent	Percent
$15 or less	40.6	13.0	43.5	2.2	0.7	100.0
$16 - $25	31.7	18.8	46.6	1.6	1.3	100.0
$26 - $35	23.0	26.3	49.1	.9	.7	100.0
$36 - $45	27.5	24.8	44.0	1.1	2.6	100.0
$46 - $55	35.5	24.7	38.0	1.2	.6	100.0
$56 or more	43.0	30.1	24.7	1.1	1.1	100.0
Total and average	30.2	23.0	44.3	1.3	1.2	100.0

The percentages for less than pecks show that at the time the sample was taken the proportions bought by low- and high-income groups were significantly higher than those purchased by the medium-income groups. Possibly limited food budgets of low-income families influenced some of them to buy potatoes in small quantities, whereas the tendency for high-income families to buy small quantities may have been associated with convenience considerations and with more careful selection for specific purposes, especially baking. 12/

Some families in all income groups chose potatoes in packages carrying a brand name, implying thereby that if they associated quality or size with a branded package regardless of income they were willing to forego a price saving to satisfy their preferences. However, families with weekly incomes of $25 or less bought a significantly smaller proportion of branded pecks than did families with medium or high incomes.

The heaviest concentration of purchases of pecks in ordinary store bags (unbranded) was reported by families with weekly incomes ranging from $16 to $35, while families with weekly incomes of $46 or more appeared to be least likely to purchase peck packages from bulk stock.

To discover which income groups on the average paid more and which paid less, for potatoes bought between February 26 and April 6, 1940, weighted-average prices were calculated by applying the average prices in table 16 to the percentages of purchases in table 17. The resulting weighted-average prices per peck shown in table 18 indicate that, on the whole, Boston families with relatively low incomes paid less for potatoes than did those with medium incomes and that those with medium incomes paid less than those with higher incomes. Whether the average quality of purchases made by families with restricted food budgets differed significantly from that of purchases made by families in the higher-income groups is a matter of speculation since data on this question are not available.

The association between purchasing power and price is significant to organizations interested in the marketing of potatoes in Boston for it suggests that for certain segments of the population price was the most important factor, but for others the desire to satisfy certain other preferences probably influenced selection more than did price. A comprehensive merchandising program would need to recognize differences in consumer purchasing power as well as in preferences.

12/ See reference cited in footnote 1(b), P. 26.

Table 18. Weighted average price per peck, all kinds of packages, by family income, Boston, Massachusetts, February 26 to April 6, 1940

Family income per week	Purchases Made	Weighted average price
	Number	Cents
$15 or less	138	38.9
$16 - $25	378	39.1
$26 - $35	456	40.0
$36 - $45	266	40.7
$46 - $55	166	41.5
$56 or more	93	42.4
Average	1,497	40.1

PRICE CHANGES AND CUSTOMERS' CHOICES OF PACKAGES

Except in years of short crops, potatoes, compared with many other foods, generally are available to consumers at relatively low prices and under ordinary circumstances are an inexpensive article of food. Because potatoes are of relatively low price and because consumers are accustomed to some price variation, families who include potatoes in their daily diet are not likely to curtail or expand their purchases with every few cents advance or fall in price. However, small increases or decreases in retail prices of potatoes which change the differentials between kinds of packages may be important because of their possible effect upon consumer choices.

Some light may be thrown on this question by comparing changes in the percentage data on purchases (table 19) with price changes at stores of the large chain groups and at independent retail outlets. It will be remembered that the average price of less than pecks (table 7) at large chain groups advanced slightly from week to week during March. Table 19 shows little change in the proportion of small packages purchased at chain stores between the first and the later part of March. The average price of branded pecks at chain stores showed little change until the fourth week of the month. A slight falling off in the proportion of families buying branded pecks in the later part of March is indicated in table 19. The average price of unbranded peck packages changed only slightly during March (table 7), and the proportion of purchases of packages of this kind at chain stores remained about the same from the first to the second half of March.

Table 19. Purchases of potatoes, March 4-16 compared with purchases March 18-30, by kind of package and kind of store, Boston, Massachusetts

Kind of package	Purchases March 4-16		Percentage of purchases March 4-16	
	Large chain groups	Independent stores	Large chain groups	Independent stores
	Number	Number	Percent	Percent
Less than pecks	63	81	21.7	42.9
Branded pecks	131	16	45.2	8.5
Unbranded pecks	96	92	33.1	48.6
Total	290	189	100.0	100.0

Kind of package	Purchases March 18-30		Percentage of purchases March 18-30	
	Large chain groups	Independent stores	Large chain groups	Independent stores
	Number	Number	Percent	Percent
Less than pecks	82	67	24.8	29.9
Branded pecks	133	20	40.3	8.9
Unbranded pecks	115	137	34.9	61.2
Total	330	224	100.0	100.0

At independent stores (table 8) a rather sharp increase in the average price of less-than-peck packages was noted between the first and second week of March; afterward little change occurred. The average price of unbranded pecks apparently changed very little during March, if at all, whereas a gradual advance in the average price of branded pecks was reported for the month. Might not these differences in price changes explain (table 19) why the proportion of purchases of small packages fell off at independent stores from the first to the second half of March, the proportion of purchases of unbranded pecks increased significantly during the month, and purchases of branded packages changed little?

Two inferences may be drawn from these data: (1) That a series of slight price advances for a short period of time probably creates less consumer reaction than a sharp advance 13/, and (2) that price changes for a particular brand or type of package should be carefully studied in relation to price of competing packages because of a possible consumers' switch to another kind of package.

13/ The reverse situation gives food for thought but no data are available for analysis.

CONSUMERS' AWARENESS OF QUALITY DEFECTS IN POTATOES

As part of this study, the enumerator asked the housewife to point out total defects in the potatoes she had in her home. Defects included dry rot, wet rot, cuts, and bruises. At the same time the enumerator, who was a qualified fruit and vegetable inspector, classified them according to defects to U. S. No. 1 grade. The extent of agreement between housewife and inspector for 769 such comparisons are shown in table 20. Branded peck packages are shown separately but all packages taken from bulk stock are grouped together regardless of quantity purchased. In addition, 421 comparisons were made where neither the housewife nor the inspector found any defects in the potatoes on hand. This does not mean, however, that there were no defects in these packages at time of purchase. Whether or not defects were found, the supply on hand when the comparisons were made usually was only part of the original purchase because some potatoes had been used before the enumerator called.

Of approximately 1,800 housewives interviewed, 1,190 either pointed out quality defects or agreed with the inspector that no defects were present in the potatoes on hand. Undoubtedly some of the remaining housewives were also quality conscious, but their supplies either were exhausted or too used up to judge of the defects or they did not take time to make the comparisons.

Table 20 reveals that whether she had bought a package carrying a brand name or one from bulk stock, the housewife recognized defects in the contents of the package. About 52 percent of the housewives who had made purchases from bulk stock agreed with the inspector on extent of defects as compared with 41 percent of those who had bought branded packages. This difference suggests that housewives' concepts of quality may vary somewhat with types of packages, whereas the inspector in all instances used the requirements for U. S. No. 1 grade in making his appraisals.

The comparisons indicate that some purchasers of branded pecks were somewhat more critical of quality than some purchasers from bulk stock as the higher prices paid would have led one to expect (table 4). However, not all consumers to whom quality or size was an important consideration purchased branded packages. An earlier release on this study 14/ indicated that, on the average, 37 percent of the families interviewed made personal selections from bulk stock in retail stores. Such families, having made their own selections, would perhaps be less critical of the appearance characteristics of their supplies than would families who had paid higher prices for potatoes and found defects only upon opening the package.

14/ See reference cited in footnote 1(a), p. 10.

Table 20. Comparisons of percentage defects found by housewife and by inspector in purchases of branded pecks and in purchases of various quantities from bulk stock, by income groups, Boston, Massachusetts, March 4 to April 6, 1940

Family income per week	Comparisons of branded pecks where - Housewife was highest	Housewife was lowest	Housewife and inspector in agreement	Total	Percentage of comparisons of branded pecks where - Housewife was highest	Housewife was lowest	Housewife and inspector in agreement	Total
	Number	Number	Number	Number	Percent	Percent	Percent	Percent
$15 or less	8	6	6	20	40.0	30.0	30.0	100.0
$16 - $25	20	11	21	52	38.4	21.2	40.4	100.0
$26 - $35	23	25	39	87	26.5	28.7	44.8	100.0
$36 - $45	15	16	21	52	28.8	30.8	40.4	100.0
$46 - $55	11	6	9	26	42.3	23.1	34.6	100.0
$56 or more	8	5	9	22	36.4	22.7	40.9	100.0
Total and average	85	69	105	259	32.8	26.6	40.6	100.0

Family income per week	Comparisons of bulk purchases where - Housewife was highest	Housewife was lowest	Housewife and inspector in agreement	Total	Percentage of comparisons of bulk purchases where - Housewife was highest	Housewife was lowest	Housewife and inspector in agreement	Total
	Number	Number	Number	Number	Percent	Percent	Percent	Percent
$15 or less	27	13	33	73	37.0	17.8	45.2	100.0
$16 - $25	33	24	83	140	23.6	17.1	59.3	100.0
$26 - $35	36	35	65	136	26.5	25.7	47.8	100.0
$36 - $45	24	16	37	77	31.2	20.8	48.0	100.0
$46 - $55	7	19	37	63	11.1	30.2	58.7	100.0
$56 or more	6	6	9	21	28.6	28.6	42.8	100.0
Total and average	133	113	264	510	26.1	22.2	51.7	100.0

Table 20 shows that defects were present and were recognized by many housewives. It supplies no information on the extent of defects in either branded or unbranded packages nor of size differences in potatoes purchased in these packages. But as an indication of the adequacy of quality standards as represented by requirements for U. S. No. 1 grade, the data show that, when viewed from the consumers' standpoint, the agreement between the quality concepts of the consumer and of the inspector is probably as satisfactory as could be expected in a population made up of various income and nationality groups. This follows because 7 out of 10 housewives either agreed with or indicated less defects than the inspector. A package of potatoes meeting the requirements of U. S. No. 1 grade for defects and containing potatoes of medium and uniform size would probably be acceptable to the average Boston family provided the price were consistent with its purchasing power.

The gradings at Boston retail stores during March did not indicate that a housewife selecting a branded or unbranded package, at random, could consistently expect to have her preferences for size and quality met regardless of the price she paid. 15/ Since consumers have demonstrated that they are far from indifferent to the size and quality characteristics of their purchases of potatoes, a group of producers who strive to eliminate existing discrepancies should expect to benefit from favorable consumer reaction.

15/ See reference cited in footnote 1(d), pp. 17-27.